

2012 Accomplishments Water Resources Division

High Risk Erosion Area (HREA) Program

Under the Great Lakes Shorelands Administrative Rules, the Department of Environmental Quality (DEQ), Water Resources Division (WRD), is required to update the recession studies along Great Lakes shorelines. These studies identify shorelines where the average recession rate is at least 1 foot per year and over a minimum of 15 years. The results of these studies are the basis for HREA designations. Within HREAs, setback requirements for new construction are established. The update recession rate studies of the Lake Superior shoreline of Luce and Alger Counties was completed in 2012.

These two counties have beautiful high sandy bluffs facing Lake Superior. However, coastal dynamics create a severe condition for development in this area; the research documented some of the highest recession rates found in the state with one area experiencing an average rate recession exceeding 15 feet per year. In one established subdivision, the lakeward tier of lots were totally eroded and submerged, and now the second tier lots are experiencing severe erosion. The photograph below shows the remnants of one house lost to erosion. The building setbacks alert property owners to the hazard and work to minimize other structures from undergoing the same fate.



Integrated Report

The WRD completed a successful on-time submittal of the biennial Water Quality and Pollution Control in Michigan 2012 Sections 303(d), 305(b), and 314 Integrated Report (Integrated Report), which was subsequently approved without comment by the United States Environmental Protection Agency (USEPA), Region 5. This report represents the culmination of a significant collective effort by staff within the WRD's Surface Water Assessment Section, as well as help from others within the WRD, other DEQ divisions, other departments, local government, and nongovernmental groups and citizens. The submittal wraps up a year-long process summarizing and reviewing various water quality data from around the state and using that information to assess whether designated uses are being met in surface waters of the state and, if not, establishing a schedule by which those waters that don't are addressed. The Integrated Report and its appendices are the final step in encapsulating this information and communicating it to the USEPA and to the general public.

Aquatic Nuisance Control (ANC) Program Streamlining

The WRD's ANC program regulates the chemical control of aquatic plants, algae, and swimmers itch when they impair the use or enjoyment of ponds, lakes, and streams.

Over the past year ANC has implemented several changes in the ANC program to help streamline our permitting process. This has helped lower the paperwork and financial burden on applicants, as well as increase permit versatility and timeliness. Streamlining was necessary because ANC received approximately 2500 permit applications this year. The number tends to increase 3-5 percent each year but staffing levels have not increased. The best examples of streamlining this year include:

- **Permit Renewal Process** – If an applicant is asking to do the exact same treatment as they did the previous year (same chemicals, same locations, etc.), we have implemented a renewal process that basically allows us to issue the same permit as the previous year with little additional review. This makes the application process easier for the applicant, as well as shortening our review times.
- **Standard Permit** – If ANC staff determines that it is appropriate, a standard permit can be issued for a treatment. This permit includes a reference to our entire list of approved chemicals. This versatility allows the applicant to select from a suite of chemical alternatives without requesting an amendment to their permit, which in turns saves both money and time for the applicant.
- **General Permit for Phragmites (giant reed)** – ANC has greatly expanded the use of this permit for treatment of many invasive plants in addition to Phragmites, particularly along the Great Lakes, but in inland areas as well. An applicant receives a low-cost certificate of coverage rather than a costly individual permit. This accomplishes the goal of controlling invasive species by lowering the regulatory burden and reduces paperwork and review time for both the applicant and the DEQ.

Beach Monitoring Program

The Great Lakes Restoration Initiative (GLRI) project, Bryant Park Remediation Project, which was designed to eliminate bacteria pollution at the beach, was successfully completed.

The WRD received GLRI funding to restore Sherman Park Beach, Four Mile Beach, and the city of New Buffalo's Public Beach.

Food Processor Wastewater Strategy

The WRD negotiated final revisions to a Food Processors Groundwater Discharge Permit with industry representatives as part of its 2009 Food Processor Wastewater Strategy. The permit provides a schedule for food processors to implement site-specific wastewater treatment options and to address groundwater contamination caused by their past discharges.

The Food Processor Wastewater Strategy was developed to address groundwater discharges of food processing wastes with high levels of biochemical oxygen demand, which in many cases has caused metals such as arsenic, iron, and manganese to be released into groundwater at levels in excess of applicable clean up criteria.

Large Concentrated Feeding Operations (CAFO)

The WRD has worked with the Michigan Agri-Business Association and industry representatives to develop guidance for CAFOs that may exceed the 5,000 animal unit threshold that would require groundwater discharge permits. As part of this effort, the WRD has reviewed existing information for two large CAFOs to develop typical information needs for review of groundwater discharge permit applications and advice to the industry on the types of requirements that may be included in a permit. This effort will continue in 2013.

Lee Steel Wetland Permit

The WRD's Southeast Michigan District Office, wetland program staff processed a wetland permit for Lee Steel that allowed them to quickly begin constructing a new state of the art steel handling facility in Romulus. This was a Red File and required the USEPA's review and concurrence with the plan. Our swift processing of the file allowed the constriction to proceed as scheduled.

Clip from Crains Detroit Business:

In his newly expanded Wyoming plant, Lee Steel Corp. CEO Zack Taylor walked next to his latest acquisition: a behemoth of a machine called a "precision multiblanking line with stretcher leveler."

"This line would outproduce the existing line in Detroit five to one," Taylor said. "It started a technological revolution for Lee Steel. We've put our money in technology, and it's kept us in business."

"Novi-based Lee Steel is about to take the next step. This summer (2012), the company plans to break ground for a \$26 million plant in Romulus. When it opens early next year, the company will close its Detroit plant at

6400 Varney St. near Hamtramck. That facility has been sold to another company, which plans to use it for storage, Taylor said."

"The Romulus plant on Eureka Road and I-275 will be four times the size of the Detroit plant and will include an environmentally friendly "pickling line" to remove scale from rolls of steel. Other plants use hydrochloric acid to remove scale. The new Lee Steel line, the first in Michigan and among only three in the country, will use a nontoxic mixture of water and steel grit."

Romulus Woodlot

We agreed to a compliance resolution that protected 118 acre high quality woodlot in the city of Romulus. These areas are becoming increasingly rare and this protected woodlot is an investment in the future for Romulus residents.

Detroit Edison Company (DTE)/MichCon Broadway - Manufactured Gas Plant Sediment Remediation

In June 2012 the Remediation and Redevelopment Division (RRD), Jackson District Office, approved a plan for interim response activities for removal of contaminated sediments and soils at the former MichCon manufactured gas plant facility in Ann Arbor. The plan was submitted in February 2012. The approval of the plan required extensive coordination between RRD and the WRD, as well as with MichCon/DTE, the city of Ann Arbor and the Huron River Watershed Council.

In September 2012 MichCon and its parent company, DTE, began fieldwork to remove contaminated sediments and contaminated nearshore soils from its former manufactured gas plant site in downtown Ann Arbor. The property is located on the banks of the Huron River, just north of the Amtrak train station, between the Argo Dam and the Broadway Street bridge. The WRD's Jackson District Office and Surface Water Assessment Section staff worked together with RRD to generate sediment cleanup criteria and to approve construction of a cap designed to prevent further migration of hazardous substances into the Huron River. The work is being done voluntarily by MichCon, the liable party, to address potential risks from contaminated sediments, and is the latest in a number of interim response activities the company has taken to reduce risks at the property. It is anticipated that at least one more interim response activity will be conducted at the property, once a final land-use plan is adopted, sometime in the future. A public meeting to discuss the proposed cleanup was held in Ann Arbor on April 10, 2012. An information bulletin with background information can be accessed at the following link: http://www.michigan.gov/documents/deq/deq-rrd-BULLETIN-MichCon_BroadwayInformationBulletin_399177_7.pdf

National Lakes Assessment (NLA)

In 2012, the WRD's Surface Water Assessment Section reported the results of the 2007 Michigan portion of the NLA. The 2007 NLA was the first-ever baseline study of the condition of the nation's lakes. It is one of a series of surveys of the nation's aquatic resources being conducted by the USEPA and its state and tribal partners. Michigan included additional lakes in the 2007 survey to provide for a state-scale assessment of Michigan's inland lakes.

The NLA provides unbiased estimates of the condition of natural and man-made freshwater lakes, ponds, and reservoirs greater than 10 acres and at least 1 meter deep. Using a statistical survey design, lakes were selected at random to represent the condition of the larger population of lakes across the lower 48 states. A total of 1,028 lakes were sampled for the NLA during the summer of 2007, representing about 50,000 lakes nationwide. In Michigan, 50 lakes were sampled, representing approximately 6,600 lakes 10 acres or larger statewide. The Great Lakes were not included in this survey. Field crews collected samples using the same methods at all lakes to ensure that the results can be compared across the country as well as the state. DEQ and USEPA researchers processed and analyzed thousands of measurements on Michigan lakes, including indicators of water quality such as nutrients, dissolved oxygen, and chlorophyll; biological indicators such as algae and microscopic animals (phytoplankton and zooplankton); recreational indicators such as algal toxins and pathogens; and physical habitat indicators such as lakeshore and shallow water habitat cover. For additional information about the NLA survey see:

http://water.epa.gov/type/lakes/lakessurvey_index.cfm

In summary, key findings of the 2007 survey were: only 3-4 percent of Michigan lakes are in poor condition for nutrients and turbidity stressors; 86 percent of Michigan lakes are in good biological condition; Michigan lakes are currently at low risk for algal toxin (microcystin) exposure; and shoreline habitat alteration is a major stressor for Michigan lakes. The 2007 Michigan NLA report can be accessed at http://www.michigan.gov/deq/0,4561,7-135-3313_3686_3731---,00.html.

In 2012 Surface Water Assessment Section staff once again participated in the NLA effort, sampling 53 randomly selected Michigan lakes. Comparable data was collected by the USEPA and its state and tribal partners at 1,133 lakes across the nation to assess the current condition of the nation's lakes, establish a baseline to compare future surveys, and evaluate change in condition since the 2007 survey. The results of the 2012 NLA survey are scheduled to be reported in 2014.

Emergency Dam Safety Order

The dam safety program issued an emergency dam safety order to the owners of the Corunna Dam, which was in danger of imminent failure. The owner failed to take action to address the situation so the WRD took the actions necessary to lower the water level behind the dam thereby reducing the downstream risk to the public safety and water quality.

Dam Safety Exercise

Ten WRD staff participated in a three-day exercise involving federal, state, and local emergency response organizations. The exercise scenario involved a large scale flooding disaster, including the failure of a dozen dams, affecting 14 counties in the thumb.

National Flood Insurance Program Mapping

The WRD completed an updated Flood Insurance Study for Hillsdale County and Ionia County, and distributed preliminary flood insurance rate maps to government officials in cities, villages, townships, and the county office for their review. In addition, WRD staff made presentations to government officials and property owners from both counties to

discuss the new maps, inform attendees about the National Flood Insurance Program, and answer any questions about flood hazard zones or flood insurance requirements.

Detroit Edison Company, Fermi, Unit 3 – Wetland Permit

On January 24, 2012, the WRD's Jackson District Office staff issued a wetland permit to facilitate construction of the Fermi site Unit 3 nuclear power plant in Monroe County. The permit allows impacts to 35.55 acres of regulated wetland at the Enrico Fermi site with the condition that 21.4 acres of wetland impacted by construction will be restored and 111.17 acres of wetland mitigation will be constructed at an off-site location. The permit was modified on October 22, 2012, after submittal of the final mitigation plan to incorporate wetland mitigation performance standards appropriate to Great Lakes coastal marsh.

The permit process began with a series of preapplication meetings that started in 2008 when DTE presented their original proposal for 153 acres of regulated wetland impacts. A three-day wetland delineation was conducted in 2008 in which wetlands were inspected across the entire 1,200-acre Fermi site. Through the next four years, WRD and DTE staff worked together along with staff of the Department of Natural Resources (DNR), United States Nuclear Regulatory Commission, United States Army Corps of Engineers, United States Fish and Wildlife Service, and USEPA. The proposed mitigation site is located on Lake Erie north of the DNR's Bolles Harbor boat launch facility. This four-year multiagency collaboration with a Michigan business developed a more compact, efficient power plant site plan that reduces wetland impacts by 78 percent and creates and preserves over 110 acres of Great Lakes coastal wetland.

Great Lakes Aggregates (GLA), Rockwood Quarry Wetland Permit

A draft wetland permit was offered to GLA in March 2012 to allow expansion of the existing Rockwood Quarry in Monroe County. The permit process began with a meeting held in March 2010 with the WRD and the United States Army Corps of Engineers in which GLA discussed their end use plans for the quarry site that included transfer of ownership of the eventual quarry lake to a public agency. The permit application, received February 2011, and subsequent negotiations resulted in a draft permit authorizing 50.06 acres of wetland impacts and creation of a 384-acre lake to facilitate expansion of the Rockwood Quarry. A public hearing was held on December 2011 in which local residents voiced their concerns about the project. The draft permit is conditional upon GLA to preserve 148 acres of existing rare and imperiled Great Lakes marsh and creation of 84 acres of additional wetlands. Collaboration between this Michigan business and the WRD provides GLA room for business growth and expansion while creating and protecting over 230 acres of Michigan wetlands.

Monroe County – A Series of Natural Resource Revitalization Projects

2012 saw a flurry of natural resource revitalization and improvement projects in Monroe County designed to welcome the public to experience the natural resources of the region. The WRD issued five separate permits in 2012 in Monroe County each for the purpose of enhancing or restoring our natural resources, fish and wildlife habitat, and access to these resources. Sterling State Park was issued a permit to restore berms to improve water quality and wetland habitat in over 300 acres of the park. The city of Monroe began permitted work on Phase 1 of a dam remediation project within the River Raisin that will restore 23 miles of the river to fish passage and recreational boating

from Lake Erie. The city of Monroe also received a permit to protect Sterling Island from erosion by placement of rock shoreline protection. The permit included Sterling Island access improvements with construction of stairs and a protected boat launch area. Removing beneficial use impairments and public health and safety were considered in authorizing a dredging permit to remove harmful contaminants from the River Raisin near the Port of Monroe turning basin. In the third permit issued to the city of Monroe, the city was authorized to construct a fishing pier cantilevered over the River Raisin. These five projects permitted by the WRD in 2012 improve water quality, expand and improve fish and wildlife habitat, and provide new opportunities for the public to experience and enjoy our natural resources that are Pure Michigan.

Eagle River Watershed

Groundwater monitoring performed at Central Mine #2 on the East Branch of the Eagle River in Keweenaw County demonstrated that historic mine wastes in contact with anoxic, acidic, groundwater were resulting in copper concentrations in the Eagle River watershed that were well over Michigan's Water Quality Standards. In 2012 the Nonpoint Source Program worked with the United States Department of Agriculture's Natural Resources Conservation Service and the Houghton Keweenaw Conservation District to remove 80,000 cubic yards of mine waste from contact with groundwater and place them in an upland site. This project resulted in 20 acres of restored wetland and over 4,000 feet of restored stream channel similar to the river corridor and wetland conditions that existed before the mines opened in 1856. Buried and preserved in the mine wastes were logs and stumps from felled white pine and cedar from nearly 150 years ago. These were left and used as a resource in our river reconstruction or left in the wetland as habitat structures. Ongoing water, biological and channel morphology monitoring will be used to assess and report improvements to water quality and overall stream health. In addition, this site is being recognized as a National Nonpoint Source Monitoring Program site.

Reissuance of the National Pollutant Discharge Elimination System (NPDES) Permit for the Dow Chemical Company

In cooperation with the Dow Chemical Company and the USEPA, the WRD reissued the NPDES permit for the Michigan Operations facility in Midland that expired in 2008. The WRD negotiated a permit that includes more restrictive effluent limitations, monitoring requirements, and storm water controls while authorizing Dow to utilize its treatment facility to collect and treat wastewaters from other manufacturing facilities. This collaboration resulted in the reissuance of a permit that increases environmental protection while promoting economic development.

Dead River Flood

2012 marked the end of an over \$8 million resource recovery effort following the May 2003 Dead River flood event. The event began when an emergency overflow dike, called a fuse plug, activated. The fuse plug spillway channel and foundation, built in the fall of 2002, failed, causing the 1,500-acre storage reservoir elevation to drop approximately 25 feet and reduce in size by over two-thirds. The event:

- Released approximately 9 billion gallons of water.
- Mobilized approximately 1 million cubic yards of sediment and debris.

- Caused 4 miles of river to establish a new channel through freshly deposited sand and scoured valley floor.
- Triggered the evacuation of 2,300 residents in 4 townships and the city of Marquette.
- Caused an estimated \$100 million in damages.

Following emergency actions to restore safety to many of the areas impacted by floodwaters an “agency team,” composed of staff from the DEQ, DNR, and United States Fish and Wildlife Service, worked with the Upper Peninsula Power Company (UPPCO) on an assessment and restoration strategy.

UPPCO completed, under agency team review, the vast majority of restoration work following the 2003 event including:

- The largest single restoration effort consisting of reconstructing approximately four miles of river channel using the natural channel design methodology to restore a stable stream channel through freshly deposited materials.
- Sixteen additional restoration and improvement projects including the 2011 work to dredge over one mile of recreation channel and installing habitat improvements at the mouth of the river in the city of Marquette.
- Funding mitigation activities in the western Upper Peninsula that support fish stocking and habitat improvements, development of a coldwater fishery, and fish tissue monitoring in the refilled Silver Lake Reservoir.



Village of New Troy a Success Story, Weesaw Township, Berrien County

In 2002 the WRD began a Total Maximum Daily Load (TMDL) effort on the Galien River for *E. coli* bacteria. The river had not been meeting water quality standards for quite some time. There was an acute historical problem with the storm drains serving the village of New Troy in Weesaw Township. These storm drains were contributing to the high *E. coli* levels in the Galien River.

In December of 2002 an enforcement action was initiated by the WRD's Kalamazoo District Office after TMDL monitoring documented extremely elevated *E. coli* concentrations in the discharge from the storm drains. This led to Weesaw Township entering an Administrative Consent Order with the state and ultimately installing a sewage collection system serving New Troy. This project solved the problems with those storm drains. An October 2, 2012, report on the progress of the TMDL illustrates just how successful the sewer project was. *E. coli* levels in the New Troy storm drains had historically reached levels as high as 430,000 cfu. The most recent data indicates the storm drain discharges (although not considered a surface water of the state) would meet water quality standards for *E. coli* applicable to surface waters of the state, with the highest reading being 70 cfu.

River Raisin Contaminated Sediment Cleanup

In November 2012, the WRD and the USEPA, Great Lakes National Program Office, completed the first phase of the River Raisin contaminated sediment cleanup under the authority of the 2007 Great Lakes Legacy Act. The Great Lakes Legacy Act is a federal-nonfederal cost share program for the remediation of contaminated sediment within Great Lakes Areas of Concern. The River Raisin project was the fifth contaminated sediment project completed with the DEQ providing a significant portion of the nonfederal share. This project brought about the removal of approximately 100,000 cubic yards of contaminated sediment with a total project cost of approximately \$18,000,000. Completion of this project should prove to be instrumental in reaching the goal of delisting the River Raisin as a Great Lake Area of Concern.